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EXAMINER	
CAI, WAYNE HUU	

ART UNIT	PAPER NUMBER
2681	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/635,367	GONG ET AL.	
	Examiner	Art Unit	
	Wayne Cai	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-109* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Amendment dated December 07, 2005.

Response to Arguments

1. Applicant's arguments filed have been fully considered but they are not persuasive.

In response to the arguments of independent claims 1, and 108, the Examiner would not understand why the Applicant only points out one particular sentence in paragraph 0026, "Based on the antenna patterns, the mobile station 160 may autonomously determine an angle of arrival," to state that the cited reference does not teach a signal is received using multiple antenna patterns. The Examiner relies on the cited reference for the fact that based on the ERPs, the mobile station 160 may calculate a signal difference (SD) between the peaks of the downlink signals 802, 804 associated with the antennas corresponding to the first and second sectors 202, 204. Clearly, this passage describes a system comprises a calculation logic for determining receive signal strength difference, inherently, a signal received, and using multiple antenna patterns in the first and second sector 202, 204.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 75-76, 87, 105-106, and 108 are rejected under 35 U.S.C. 102(e) as being anticipated by Benes et al. (hereinafter "Benes") (US 2004/0203539 A1).

Regarding claims 1, 75, 76, and 105-106, Benes discloses a system, a method comprising:

a database (i.e., a data storage, paragraph 0028) containing antenna gain differences between multiple antenna patterns of a wireless network access node (paragraphs 0021-0023);

calculation logic for determining receive signal strength differences of a signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns (paragraph 0026);

comparison logic for comparing said receive signal strength differences to said antenna gain differences and identifying a closest match (paragraph 0027).

Regarding claims 3, and 87, Benes discloses the system, and method of claims 1, and 75 as described above. Benes also discloses wherein said database contains antenna gain differences associated with each antenna pattern of said wireless network access node (paragraph 0026).

Regarding claim 108, Benes discloses a system for providing location positioning of a device in a wireless network, said system comprising: a channel model independent determination algorithm utilizing receive signal strength differences

between multiple receive antenna patterns of a wireless network node (paragraphs 0026-0027), and antenna gain differences between said multiple antenna patterns to determine information with respect to a position of said device (box 1020 and its descriptions).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 38-43, 46, 69, 91-94, 109 are rejected under 35 U.S.C. 102(b) as being anticipated by Reed et al. (hereinafter "Reed") (US – 6,148,211).

Regarding claims 38, and 91, Reed discloses a system, and a method comprising:

- a database (col. 6, lines 27-57) containing predicted receive signal strength information for multiple antenna patterns (i.e., calculate signal characteristics associated with the reception) of a wireless network access node (col. 5, lines 39-67);

The Examiner also notes that since the reference discloses that they system could predict receive signal strength information for multiple antenna patterns of multiple base stations, it is obvious that a predicted signal strength for a wireless network access node could also be calculated.

- measurement logic for measuring receive signal strengths of a signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns (col. 6, line 58 – col. 7, line 12);
- comparison logic for comparing said measured receive signal strengths to said predicted receive signal strength information and identifying a closest match (col. 7, lines 13-40, and col. 8, lines 23-56).

Regarding claims 39-40, Reed discloses the system of claim 38. Riley further discloses wherein said database associates predicted receive signal strength information in sets of multiple antenna patterns having a distance/position associated therewith (col. 6, lines 35-43).

Regarding claim 41, Reed discloses the system of claim 38 as described above. Riley also discloses wherein said predicted receive signal strength information is predicted using a generic propagation model (col. 5, lines 22-28).

Regarding claim 42, Reed discloses the system of claim 38 as described above. Reed also discloses wherein said predicted receive signal strength information includes predicted receive signal strength information of a plurality of wireless network access nodes (fig. 5 and its descriptions).

Regarding claim 43, Reed discloses the system of claims 38 as described above. Since Reed discloses all the steps as claimed in claim 38. It is therefore obvious to one skilled in the art that the same steps could be performed for the second

wireless network access node. Hence, the Examiner rejects claim 43 for the same reasons set forth in rejected claim 38.

Regarding claim 46, Reed discloses the system of claim 43 as described above. Reed also discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match (col. 6, lines 58-67).

Regarding claim 69, Reed discloses the system of claim 38 as described above. Reed further discloses wherein said closest match is utilized in identifying a location of said device in a service area of a wireless network (col. 7, lines 13-40).

Regarding claim 92, Reed discloses a method of claim 91 as described above. Reed also discloses identifying a distance associated with said closest match (col. 5, lines 39-46, col. 7, lines 13-41).

Regarding claim 93, Reed discloses a method of claim 91 as described above. Reed further discloses estimating a position of said device as a function of said distance (col. 7, lines 13-41).

Regarding claim 94, Reed discloses a method of claim 91 as described above. Reed also discloses identifying a position associated with said closest match (col. 5, lines 39-46, col. 7, lines 13-41).

Regarding claim 109, Reed discloses a system for providing location positioning of a device in a wireless network, said system comprising: a channel model based determination algorithm utilizing receive signal strengths of said multiple antenna patterns and signal strength predictions provided by modeling an environment of said

wireless network to determine information with respect to a position of said device (col. 5, line 39 – col. 6, line 67).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in view of Newman (US – 5,581,260).

Regarding claims 2, and 86, Benes discloses the system, and method of claims 1, and 75 as described above, except wherein said database contains antenna gain differences between multiple narrow antenna patterns and a wide antenna pattern.

In a similar endeavor, Newman discloses an angular diversity/spaced diversity cellular antennas and methods. Newman further describes at column 1, line 54 – column 2, line 7, "Use of higher gain receive antennas at each cell site would permit reliable reception of user signals at greater distances. However, for a given type of antenna, gain is directly related to beamwidth and an antenna providing coverage over a 120 degree azimuth sector typically provides relatively low gain performance. High gain may be achievable by use of larger antennas, however size and cost may become limiting factors. Higher gain is also possible by use of narrow beamwidth antennas providing coverage of only a portion of a sector. Use of antenna systems providing

sector coverage by provision of a plurality of narrow beams could be arranged to provide higher gain than available by use of a single wide beam sector antenna. However, for a multi-beam antenna the antenna pattern gain provided at beam crossovers between adjacent narrow beams will be significantly lower than the peak gain provided along the beam centerline of each narrow beam. For full sector coverage, the improvement in gain achieved by replacement of a single wide beam sector antennas with antennas providing two or more narrower beams is, therefore, limited by the effective gain provided at the crossover between adjacent beams." Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to use multiple narrow antenna patterns and a wide antenna pattern to compute or determine antenna gain differences because in order to compute the antenna gain differences, it would require at least two different antenna patterns to take into considerations, and that is a multiple narrow beam, and a wide beam. It is also obvious to one skilled in the art that the antenna gain differences could be stored on any computer-readable medium such as non-volatile memory, or a database.

8. Claims 4-9, 27-31, and 88-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benes.

Regarding claim 4, Benes discloses the system of claim 1 as described above. Benes also discloses wherein said database associates ones of said antenna gain differences in antenna gain difference sets (paragraph 0021).

The Examiner notes that since the Applicant does not specifically describe what or how antenna gain difference sets is defined in the claim. Therefore, the Examiner broadly interprets, or one skilled in the art would conceptualize that an antenna gain difference set is a group of at least two or more. Since, Benes describes steps of how to determine, or compute gain difference between the first and second downlink signals. It is, therefore, obvious to one skilled in the art that database associates ones of said antenna gain differences in antenna gain difference sets.

Regarding claim 5, Benes discloses the system of claim 4 as described above. Benes also discloses wherein each antenna gain difference set includes angle information (paragraph 0022).

Regarding claim 6, Benes discloses the system of claim 5 as described above. Benes further discloses wherein said angle information comprises an azimuthal angle of a vector pointing from said wireless network access node to said device (paragraph 0023).

Regarding claim 7, Benes discloses the system of claim 4 as described above. Benes also discloses wherein antenna gain difference sets include antenna gain differences of a plurality of wireless network access nodes (paragraph 0018).

Regarding claim 8, Benes discloses the system of claim 7 as described above. Benes further discloses wherein said antenna gain difference sets including antenna gain differences of a plurality of wireless network access nodes include position information (paragraph 0020).

Regarding claim 9, Benes discloses the system of claim 1 as described above, except for disclosing the method applying to a second wireless network access node. However, it is obvious to one skilled in the art that if Benes fully discloses all the steps as claimed in claim 1, then the same steps could be applied to the second wireless network access node.

Regarding claims 27-31, and 88-90, Benes discloses the system of claims 1, and 75 as described above. Benes, however, does not specifically disclose a security logic preventing access to a wireless network, location based access security logic for providing levels of access to a wireless network, content. However, it is obvious to one skilled in the art that once a location of the device is identified or determined, then one skilled in the art would be able to utilize the location information to beam or deliver information, advertisement to the particular device or user. Furthermore, based on the location determination, then one skilled in the art would be able to have a control over it. Hence, a security logic, location-based access security logic for providing levels of access to wireless, content delivery logic for providing content, or management logic for providing management are solely a design decision; and therefore, it is obvious to one skilled in the art, and it is not novel.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in view of Riley (US – 6,865,395 B2).

Regarding claim 10, Benes discloses the system of claim 9 as described above, except location estimation logic for determining an estimated location of said device

from an intersection point of vectors projected from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for determining an estimated location of said device from an intersection point of vectors projected from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a method of estimating location of a device from an intersection point of vector projected from the wireless network access node because this is one of the desirable methods in determining the location.

10. Claims 11-21, 24-26, 32-37, 77-85, and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in view of Reed.

Regarding claim 11, Benes discloses the system of claim 9 as described above, except location estimation logic for determining an estimated location of said device from position information stored in association with said closest match of said antenna gain differences.

In a similar endeavor, Reed discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match (col. 6, lines 58-67). Also, Benes on the other hand discloses antenna gain differences as a factor in determining the location of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes with Reed's invention to arrive at the present invention because by comparing the measured with the predicted data improve the location prediction error rate.

Regarding claims 12-14, and 24-26, Benes discloses the system of claim 1 as described above, except wherein said calculation logic, said comparison logic, and said measurement logic are disposed at a centralized system in communication with a plurality of wireless network access nodes, a distributed configuration, or within said wireless network access node.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses said calculation logic and said comparison logic are disposed at a centralized system in communication with a plurality of wireless network access nodes (col. 5, lines 22-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area to arrive at the present feature because it is more efficient to have a centralized system to compute all the data in determining the location of the device. Furthermore, the Examiner also notices that even though the cited references do not specifically disclose different types or exactly where the calculation logic, comparison logic, and measurement logic are disposed. However, it is obvious to one skilled in the art to modify by disposing the calculation logic, comparison

logic, and measurement logic at a distribution configuration or within the wireless network access node without alternating the functionalities of these logics.

Regarding claim 15, Benes discloses the system of claim 1 as described above, but fails to teach claim 15 limitations.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses:

- a database (col. 6, lines 27-57) containing predicted receive signal strength information for said multiple antenna patterns of said wireless network access node (col. 5, lines 39-67);
- measurement logic for measuring receive signal strengths of a signal received from said device using said multiple antenna patterns (col. 6, line 58 – col. 7, line 12);
- comparison logic for comparing said measured receive signal strengths to said predicted receive signal strength information and identifying a closest match (col. 7, lines 13-40, and col. 8, lines 23-56).

It would have been obvious to one of ordinary skill in the art at the time the invention to incorporate Reed's invention as an alternative method in determining the location or position of a device.

Regarding claims 16-17, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said database containing predicted receive signal strength information associates predicted receive signal strength information in sets having a distance/position associated therewith (col. 6, lines 35-43).

Regarding claim 18, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said predicted receive signal strength information is predicted using a generic propagation model (col. 5, lines 22-38).

Regarding claim 19, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said predicted receive signal strength information includes predicted receive signal strength information of a plurality of wireless network access nodes (fig. 5 and its descriptions).

Regarding claims 20, and 79, Benes and Reed disclose the system, and method of claims 15, and 75 as described above. Since Reed discloses all the steps as claimed in claim 15. It is therefore obvious to one skilled in the art that the same steps could be performed for the second wireless network access node. Hence, the Examiner rejects claims 20 and 79 for the same reasons set forth in rejected claim 15.

Regarding claim 21, Benes and Reed both disclose the system of claim 20 as described above. Benes further discloses comprising: location estimation logic for determining an estimated location of said device from an intersection point of arcs projected identified distances from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

Regarding claim 23, Benes and Reed disclose the system of claim 20 as described above. Reed further discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match of said predicted receive signal strength information (col. 7, lines 13-41).

Regarding claim 32, Benes discloses the system of claim 1 as described above, except wherein said closest match is utilized in identifying location of said device in a service area of a wireless network.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses wherein said closest match is utilized in identifying location of said device in a service area of a wireless network (col. 7, lines 13-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area because by comparing the estimated or predicted and the measured value to find the closest match in Reed's disclosure is to determine the location of the device in a particular service area of a wireless network.

Regarding claims 33-37, Benes and Reed both disclose the system of claims 32 as described above. Even though Reed only discloses a cellular network, but do not specifically disclose all different types of a wireless network as claims in claims 33-37. However, one skilled in the art would conceptualize that **wireless network** could be one of the networks as claimed in claims 33-37.

Regarding claim 77, Benes discloses the method of claim 76 as described above. Benes, however, fails to disclose estimating a position of said device as a function of said direction.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses estimating a position of said device as a function of said direction.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an estimating a position of the device as a function of direction because predicting the direction is part of detecting the position of the device.

Regarding claim 78, Benes discloses the method of claim 76 as described above. Benes, however, fails to disclose identifying a position stored in associated with said closest match.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses identifying a position stored in associated with said closest match (col. 7, lines 13-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the method of identifying a position stored in associated with said closest match so that the position of the device could be predicted or estimated more precisely.

Regarding claim 80, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences; and identifying a distance associated with said closest match of said receive signal strengths (paragraphs 0028-0030).

Regarding claim 81, Benes and Reed disclose the method of claim 80 as described above. Benes also discloses estimating a position of said device as a function of said direction and said distance (paragraphs 0028-0030).

Regarding claim 82, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences (paragraph 0026); and identifying a position associated with said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 83, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses estimating a position of said device as a function of said closest match of said antenna gain differences (paragraph 0026); and separately estimating a position of said device as a function of said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 84, Benes and Reed disclose the method of claim 83 as described above. Reed also discloses wherein a one of said position estimates is used to confirm the other of said position estimates (col. 1, lines 1-21).

Regarding claim 85, Benes and Reed disclose the method of claim 79 as described above. Benes further describes identifying a position associated with said closest match of said antenna gain differences (paragraph 0026); identifying a position associated with said closest match of said receive signal strengths (paragraph 0027); and estimating a position of said device as a function of said position associated with

said antenna gain differences and said position associated with said receive signal strengths (paragraph 0026-0028).

Regarding claim 107, Benes discloses the system of claim 105 as described above. Benes, however, does not specifically disclose said channel model based determination algorithm further utilizes signal strength prediction provided by modeling an environment of said wireless network.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses said channel model based determination algorithm further utilizes signal strength prediction provided by modeling an environment of said wireless network (col. 5, lines 13-38).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the predicted signal strength to precisely make a comparison and determine the location of the device.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in view of Reed, further in view of Riley.

Regarding claim 22, Benes and Reed both disclose the system of claim 20 as described above, except location estimation logic for determining an estimated location of said device from a midpoint of positions associated with said closest matches from said wireless network access node and said second wireless network access node.

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for

determining an estimated location of said device from a midpoint of positions associated with said closest matches from said wireless network access node and said second wireless network access node (col. 6, lines 48-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a step of determining an estimated location of the device from a midpoint of positions associated with closest matches because the midpoint positions between the first and second wireless network access node could be an appropriate approximation location of the device.

12. Claims 47-49, 59-68, 70-74, 102-104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed.

Regarding claims 47-49, 59-63, Reed discloses the system of claim 38 as described above, Reed further discloses said calculation logic and said comparison logic are disposed at a centralized system in communication with a plurality of wireless network access nodes (col. 5, lines 22-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area to arrive at the present feature because it is more efficient to have a centralized system to compute all the data in determining the location of the device. Furthermore, the Examiner also notices that even though the cited references do not specifically disclose different types or exactly where the calculation logic and comparison logic are disposed. However, it is obvious to one

skilled in the art to modify by disposing the calculation logic and comparison logic at a distribution configuration or within the wireless network access node without alternating the functionalities of these logics.

Regarding claims 64-68, 102-104, Benes discloses the system of claims 38, and 91 as described above. Benes, however, does not specifically disclose a security logic preventing access to a wireless network, location based access security logic for providing levels of access to a wireless network, content. However, it is obvious to one skilled in the art that once a location of the device is identified or determined, then one skilled in the art would be able to utilize the location information to beam or deliver information, advertisement to the particular device or user. Furthermore, based on the location determination, then one skilled in the art would be able to have a control over it. Hence, a security logic, location-based access security logic for providing levels of access to wireless, content delivery logic for providing content, or management logic for providing management are solely a design decision; and therefore, it is obvious to one skilled in the art, and it is not novel.

Regarding claims 70-74, Reed both discloses the system of claims 69 as described above. Even though Reed only discloses a cellular network, but do not specifically disclose all different types of a wireless network as claims in claims 70-74. However, one skilled in the art would conceptualize that **wireless network** could be one of the networks as claimed in claims 70-74.

13. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed in view of Riley.

Regarding claim 44, Reed discloses the system of claims 43 as described above, except location estimation logic for determining an estimated location of said device from an intersection point of vectors projected from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for determining an estimated location of said device from an intersection point of vectors projected from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a method of estimating location of a device from an intersection point of vector projected from the wireless network access node because this is one of the desirable methods in determining the location.

Regarding claim 45, Reed discloses the system of claim 43 as described above, except location estimation logic for determining an estimated location of said device from a midpoint of positions associated with said closest matches from said wireless network access node and said second wireless network access node.

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for determining an estimated location of said device from a midpoint of positions associated

with said closest matches from said wireless network access node and said second wireless network access node (col. 6, lines 48-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a step of determining an estimated location of the device from a midpoint of positions associated with closest matches because the midpoint positions between the first and second wireless network access node could be an appropriate approximation location of the device.

14. Claims 50-55, and 95-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed in view of Benes.

Regarding claim 50, Reed discloses a system as described in claim 38, but Reed does not specifically disclose this claim feature.

In a similar endeavor, Benes discloses a method and mobile station for autonomously determining an angle of arrival estimation. Benes further discloses:

a database (i.e., a data storage, paragraph 0028) containing antenna gain differences between multiple antenna patterns of a wireless network access node (paragraphs 0021-0023);

calculation logic for determining receive signal strength differences of a signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns (paragraph 0026);

comparison logic for comparing said receive signal strength differences to said antenna gain differences and identifying a closest match (paragraph 0027).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a system having a computation of antenna gain differences and receive signal strength in order to determine the location of the device.

Regarding claim 51, Reed and Benes disclose the system of claim 50 as described above. Benes also discloses wherein said database associates ones of said antenna gain differences in antenna gain difference sets (paragraph 0021).

The Examiner notes that since the Applicant does not specifically describe what or how antenna gain difference sets is defined in the claim. Therefore, the Examiner broadly interprets, or one skilled in the art would conceptualize that an antenna gain difference set is a group of at least two or more. Since, Benes describes steps of how to determine, or compute gain difference between the first and second downlink signals. It is, therefore, obvious to one skilled in the art that database associates ones of said antenna gain differences in antenna gain difference sets.

Regarding claim 52, Reed, and Benes disclose the system of claim 51 as described above. Benes also discloses wherein each antenna gain difference set includes angle information (paragraph 0022).

Regarding claim 53, Reed, and Benes discloses the system of claim 51 as described above. Benes further discloses wherein said antenna gain difference sets include position information (paragraph 0020).

Regarding claim 54, Reed, and Benes disclose the system of claim 51 as described above. Benes also discloses wherein antenna gain difference sets include

antenna gain differences of a plurality of wireless network access nodes (paragraph 0018).

Regarding claim 55, Reed, and Benes disclose the system of claim 51 as described above. Benes further discloses wherein said antenna gain difference sets include position information (paragraph 0020).

Regarding claim 95, Reed discloses a method of claim 91 as described above. Reed, however, fails to disclose the features of claim 95.

In a similar endeavor, Benes discloses method and mobile station for autonomously determining an angle of arrival estimation. Benes also discloses:

calculating antenna gain differences between multiple antenna patterns of a wireless network access node (paragraphs 0021-0023);

determining receive signal strength differences of a signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns (paragraph 0026);

comparing logic for comparing said receive signal strength differences to said antenna gain differences and identifying a closest match (paragraph 0027).

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a system having a computation of antenna gain differences and receive signal strength in order to determine the location of the device.

Regarding claim 96, Reed, and Benes disclose the method of claim 95 as described above. Benes also discloses identifying a direction associated with said

closest match of said antenna gain differences; and identifying a distance associated with said closest match of said receive signal strengths (paragraphs 0028-0030).

Regarding claim 97, Reed, and Benes disclose the method of claim 80 as described above. Benes also discloses estimating a position of said device as a function of said direction and said distance (paragraphs 0028-0030).

Regarding claim 98, Reed and Benes disclose the method of claim 79 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences (paragraph 0026); and identifying a position associated with said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 99, Reed and Benes disclose the method of claim 79 as described above. Benes also discloses estimating a position of said device as a function of said closest match of said antenna gain differences (paragraph 0026); and separately estimating a position of said device as a function of said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 100, Reed and Benes disclose the method of claim 83 as described above. Reed also discloses wherein a one of said position estimates is used to confirm the other of said position estimates (col. 1, lines 1-21).

Regarding claim 101, Reed and Benes disclose the method of claim 79 as described above. Benes further describes identifying a position associated with said closest match of said antenna gain differences (paragraph 0026); identifying a position associated with said closest match of said receive signal strengths (paragraph 0027);

and estimating a position of said device as a function of said position associated with said antenna gain differences and said position associated with said receive signal strengths (paragraph 0026-0028).

15. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed in view of Benes, and further in view of Riley.

Regarding claim 56, Reed, and Benes disclose the system of claim 50 as described above.

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses wherein said database containing antenna gain differences further contains antenna gain differences between multiple antenna patterns of a second wireless network access node (col. 6, lines 13-24), said calculation logic is further for determining receive signal strength differences of a signal received from said device using said multiple antenna patterns of said second wireless network access node (col. 6, lines 13-24), and said comparison logic for comparing said receive signal strength differences is further for comparing said receive signal strength differences of said second wireless network access node to said antenna gain differences and identifying a closest match (col.6, lines 25-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a database, calculation and comparison logic containing antenna gain differences, and receive signal strength because this information is needed in computing or estimating the location of the device.

Regarding claim 57, Reed, Benes, and Riley disclose the system of claims 56 as described above. Riley also discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for determining an estimated location of said device from an intersection point of vectors projected from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

Regarding claim 58, Reed, Benes, and Riley disclose the system of claim 56 as described above. Reed further discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match (col. 6, lines 58-67). Also, Benes on the other hand discloses antenna gain differences as a factor in determining the location of the device.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday-Friday; 9:00-6:00; alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Wayne Cai
Examiner
Art Unit 2681

ERIC S. GARY
PRIMARY EXAMINER